Puccinia gladioli on *Gladiolus*

Puccinia gladioli is a heteroecious rust of quarantine significance for the U.S. It is known from Europe and Asia. Although the aecial stage on *Valerianella* is reported from the western U.S., no telia have been found on *Gladiolus* in the U.S.

Puccinia gladioli Castagne, Obs. Pl. Acotyl. 2:17 1843.

On *Valerianella*:

Spermogonia generally hypophyllous, yellow, eventually blackish, globose, with periphyses.

Aecia generally hypophyllous, scattered, occasionally epiphyllous and isolated, cylindric or cupulate, 250-300 µm diam., peridium margin lacerate, peridial cells rhomboid, 20-34 x 17-24 µm, external wall transversally striate, 3-6 µm thick, internal wall verrucose, 2-3.5 µm thick; aeciospores subglobose, angular globose to ellipsoid, 17-24 x 13-18 µm, wall 1.5-3 µm thick, minutely verrucose.

On *Gladiolus*:

Uredinia unknown

Telia amphigenous, on reddish spots, sometimes limited by veins, minute, rounded, densely crowded or confluent, forming a crust up to 1 cm long, often covering much of the leaf surface, compact, chestnut brown to black; paraphyses cylindric to slightly clavate, brown, up to 80 µm long; teliospores ellipsoid to clavate, apex round to acute, slightly constricted at septum, gradually narrowing below septum, 36-60 x 16-27 µm, wall smooth, pale brown, 2-3 µm thick, up to 10 µm at the apex, sometimes mesospores present, 24-40 x 12-17 µm; pedicel hyaline, persistent, 10-60 µm long.

Hosts: Mainly on species of *Gladiolus* and *Valerianella*

Geographic distribution: Reported on *Gladiolus* from Europe and Asia. Although telia of *Puccinia gladioli* on *Gladiolus* have not been reported from the U.S., the aecial stage (*Aecidium valerianellae*) on *Valerianella* has been reported from the western U.S., as well Europe and Asia.

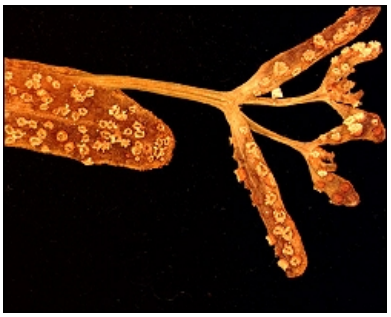
The heteroecious condition of this rust was proven by d'Oliviera (1949) who inoculated aeciospores of *Aecidium valerianellae* from *Valerianella* onto *Gladiolus* and observed production of telia typical of *P. gladioli* after 10 days (Wilson and Henderson 1966).

The only other *Puccinia* reported on *Gladiolus* is *Puccinia mccleanii* Doidge (1941) from South Africa. That species produces aparaphysate telia on *Gladiolus* whereas *P. gladioli* produces telia with paraphyses. Teliospores of *P. mccleanii* are thinner and paler than those of *P. gladioli*, which produces teliospores with cell walls usually thickened at the apex, up to 10 µm.

References:

d'Oliviera, B. 1949. Life cycle of *Puccinia gladioli* Cast. Nature 164: 239.
Doidge, E.M. 1941. South African rust fungi IV. Bothalia 4: 229-236.

Aecia BPI 153567



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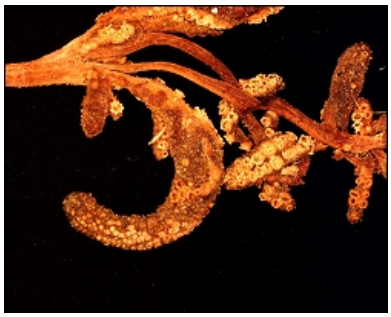

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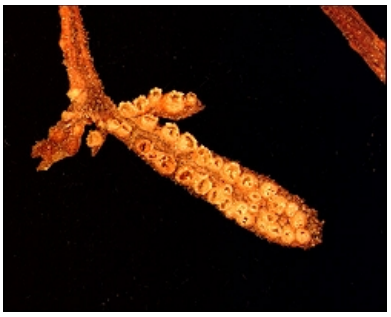

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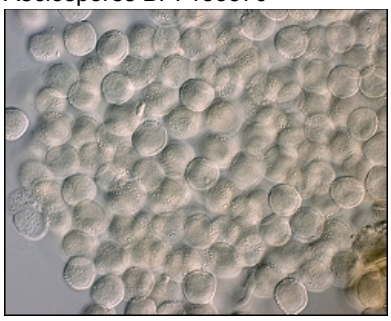

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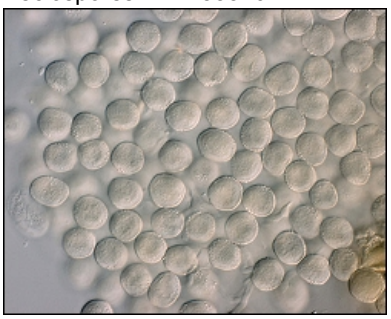

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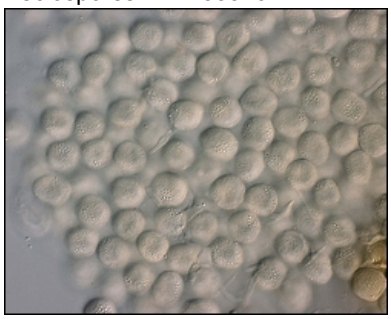

Telia BPI 068188

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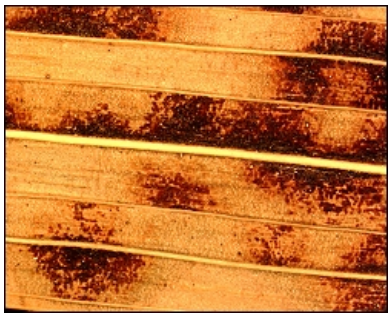
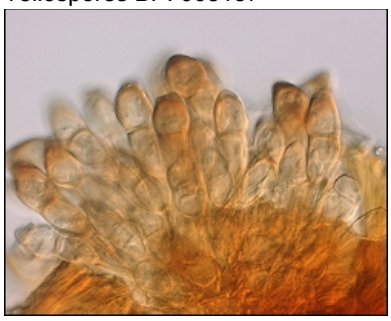


Teliospores BPI 068187

Teliospores BPI 068187



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